

REMARKS

This responds to the Office Action dated April 30, 2008.

Claim 19 is amended. Claims 1-19, 21-25, and 27-19 remain pending in this application.

Claim Objections

Claim 19 was objected to. Claim 19 has been amended to make the correction as indicated in the Office Action. Applicant believes that the amendment has addressed to issue raised in the Office Action, and therefore respectfully requests withdrawal of the objection.

§103 Rejection of the Claims

Claims 19, 22-24 and 27-29 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Banquy (U.S. 4,782,096) in view of Davis et al. ("Cryogenics for Syngas Processing", Chemical Engineering Progress, February 1980, pages 72-79; hereinafter "Davis") and McNeil et al. (U.S. 6,073,461; hereinafter "McNeil").

Claim 21 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Banquy in view of Davis and McNeil, as applied to claim 19 above, and further in view of Ireland et al. (U.S. 4,044,063; hereinafter "Ireland").

Claim 25 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Banquy in view of Davis and McNeil, as applied to claim 19 above, and further in view of Keller (U.S. 4,650,814).

Claim 19

Applicant respectfully traverses the rejection and submits that the Office Action does not provide a properly articulated reason for the combination of Banquy, Davis, and McNeil, and therefore does not set forth a proper *prima facie* case of obviousness. The Office Action asserts:

Banquy discloses that "[a]ny physical separation process can be used" in the physical separation zone and, in particular, "[t]he physical separation can ... be achieved by cryogenic techniques, or distillation at low temperature, such as outlined in ..." to Davis et al. (see column 9, lines 55-68).

...

It would have been obvious ... to select the physical separation zone as taught by McNeil et al. for the physical separation zone in the apparatus of Banquy, because any physical

separation process can be used, and a physical separation process employing cryogenic techniques or distillation at low temperature is specifically suggested as being suitable (see Banquy: column 9, lines 55-65).

The cited portions of Banquy include several references, including Davis, for the “physical separation zone”. As stated in the Office Action, Banquy discloses that “[a]ny physical separation process can be used”, together with examples of this process that are “specifically suggested as being suitable”. It is therefore believed that one of ordinary skill in the art would be motivated to choose one of these examples.

The Office Action further asserts:

However, one having ordinary skill in the art would have been motivated to provide the physical separation zone of McNeil et al. in the apparatus of Banquy because, unlike conventional cryogenic techniques (such as Davis et al.), the separation zone of McNeil et al. further removes nitrogen contaminant from the carbon monoxide product, which is desirable for environmental and processing reasons (see McNeil et al.: column 1, lines 16-35).

Applicant respectfully disagrees. The cited portions of McNeil state:

Conventional cryogenic separation processing leaves nitrogen as an impurity in the carbon monoxide, which, for both environmental and processing reasons, is unacceptable for some uses of carbon monoxide. The problem of nitrogen contamination of carbon monoxide product is becoming an increasing problem with the usage of more marginal feed stock in front end reforming processes. Further, there is an increasing demand for carbon monoxide to be free of argon, which usually is a co-contaminant with nitrogen.

Thus, according to McNeil, nitrogen in carbon monoxide is unacceptable or problematic only for some uses of carbon monoxide. Applicant is unable to find in Banquy a reason for the presence of nitrogen to be unacceptable or problematic in its use of carbon monoxide. Applicant is also unable to find such a reason articulated in the Office Action.

Specifically, Banquy states that the physical separation processes results in “a residual gas stream which contains essentially methane, carbon oxides, argon, nitrogen, and some hydrogen, and which can be used as fuel in the primary stream reformer” (column 9, lines 47-54). Applicant is unable to find in Banquy or the Office Action that the residual gas stream including nitrogen, resulting from “conventional cryogenic techniques (such as Davis et al.)”, is unacceptable or problematic for environmental and processing reasons when “used as fuel in the primary stream reformer”. Additionally, by stating that “[a]ny physical separation process can be used” and providing various examples of “conventional cryogenic techniques”, Banquy appears to teach away from a need for using McNeil’s physical separation zone.

Therefore, it is respectfully submitted that the Office Action has not articulated a proper reason for providing the “physical separation zone” of McNeil in the apparatus of Banquy. At least for this reason, the obviousness rejection is believed to be improper.

Applicant respectfully requests reconsideration and allowance of claim 19.

Claim 21-25 and 27-29

Applicant respectfully traverses the rejection. Claims 21-25 and 27-29 are dependent on claim 19, which is believed to be allowable for at least the reasons set forth above. It is believed that the addition of Ireland or Keller does not remedy the deficiency of the rejection of claim 19 using Banquy, Davis, and McNeil as discussed above. Therefore, the discussion above for claim 19 is incorporated herein to support the patentability of claims 21-25 and 27-29.

Applicant respectfully requests reconsideration and allowance of claims 21-25 and 27-29.

CONCLUSION

Applicant respectfully submits that the claims are in condition for allowance, and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney at (612) 373-6912 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.


Respectfully submitted,

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Date

July 30, 2008

By


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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being filed using the USPTO's electronic filing system EFS-Web, and is addressed to: Mail Stop Amendment, Commissioner of Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 30th day of July, 2008.

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